He found high salt supply gives vegetative growth, while low salt supply induces fruiting. FISCHER found that increasing photosynthesis and the supply of carbohydrate material, through increased CO_2 pressure, the nitrogen supply remaining constant, induces the reproductive phase. Finally, in a series of very critical experiments and analyses, KRAUS and KRAYBILL found that a relative abundance of carbohydrate over nitrogenous material in the plant induces fruitfulness, while a relatively greater nitrogen supply induces vegetative growth. Excessive carbohydrate over nitrogen inhibited both vegetative and reproductive growth. All of this work shows a very close relation between the conditions of nutrition in the plant and the type of growth expression. GARNER and ALLARD have undoubtedly made a contribution of great value to the subject of vegetation and reproduction in plants. The reviewer feels, however, that their conclusions are much broader than a careful review of the whole subject warrants. It would be difficult, for example, to explain the phenomenon of alternate fruiting in many of our orchards on the basis of length of day influence. A critical study of the nitrogen and carbohydrate metabolism under these reduced exposures to illumination would be of great value in arriving at an understanding of the many factors in plant growth and reproduction.—J. R. MAGNESS.

Ecological research.—In a report of research in progress under the direction of the Carnegie Institution, Director MACDOUGAL[11] reports progress upon a number of interesting problems. SHREVE has continued investigations upon the vegetation of the arid Avra Valley, and reports progress in a soil temperature survey of the United States and Canada. CANNON presents some conclusions derived from a field study of the vegetation of central, northern, and southwestern South Australia, as well as some further results in the investigations of the reactions of roots to varying amounts of carbon dioxide in the soil. He has also some data as to the size and form of leaves of desert plants. COOPER reports the beginnings of a study of the strand vegetation of the Pacific Coast at Coronado and Monterey, California. These regions possess interesting dune areas, upon which various plant associations, varying from pioneer herbaceous to chaparral and forest communities, have become established. These communities are being mapped, permanent quadrats and transects established, and the underground portions of many species excavated and studied. Measurements of evaporation, soil moisture, and soil temperature have been made, and material collected for anatomical studies. MACDOUGAL and SPOEHR are conducting investigations to discover the origin of xerophytism in plants, and Mrs. SHREVE has records extending over several years of seasonal changes in the water relations of such desert plants as *Encelia farinosa*, *Streptanthus arizonicus*, and *Amaranthus Palmeri*.—GEO. D. FULLER.

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[11] MACDOUGAL, D. T., Ecology. Carnegie Inst. Wash. Year Book for 1919. 18:87–102. 1920.